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ABSTRACT

An outcome of a federal project for highly gifted students, the booklet outlines a course in archaeology. Introductory notes assess the value of critical thinking and inter-disciplinary exploration in archaeology. Narrative information on the history and theory of archaeology are followed by task cards designed to be given to students for independent pursuit in archaeology. Each card contains information on subject, objectives, introduction, activities, and materials needed. Sample topics include hieroglyphics, salvage archaeology, archaeological techniques, language, cultural universals, historical research, interpretation of artifacts, and cultural development of American Indians. (CL)

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a guide to Archaeology for highly gifted students

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A GUIDE TO ARCHAEOLOGY....
for highly gifted students

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*Project Quest is a 1980-82 Title IVC project for highly gifted.

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INTRODUCTION

"What's past is prologue."

Shakespeare: The Tempest

In our recent past we have taken giant strides into the future. These quantum leaps have catapulted us into space before we had mastered the art of peaceful co-existence here on earth. The fear is that we are taking our unresolved conflicts with us and that they will eventually and inevitably reassert themselves.

The need for some of us to keep our feet on the ground and resolve some of the age-old problems that stalk mankind is imperative and obvious. Some have discovered that digging into the ground can help with these problems and they are called archaeologists. Digging into our shared past, archaeologists have tried to tell us where we have been so we can better know why we are here and where we are going.

Lest we think that contemporary civilization is immune from annihilation or that "Western superiority" is guaranteed, archaeologists remind us that other eras produced mighty and brilliant civilizations that fell from internal or external causes. What these causes were and how we can avert them are lessons we might well learn from those who study the past.

Not that archaeologists, anthropologists and historians have, as of yet succeeded in putting it all together for us. Maybe they never will or can. Maybe they can and will. The challenge of decoding human nature and its cultures looms larger than the challenge of decoding the DNA molecule ever did.

Because archaeologists can get buried in their own data, we need archaeologists who are generalists as well as specialists, who can interpret the past as well as dig it up. This unit has been prepared by teachers of the gifted and highly gifted in the hope that some of their students – and the students of those teachers who use the unit – will respond to that need. Moreover, these teachers believe that all gifted students can benefit from studying archaeology. The reasons for so believing have been enumerated in the unit's Rationale. Because gifted students thrive on independent and small group work that challenges their interests and talents, these teachers have prepared many diverse archaeological tasks that cater to specific learning styles and age groups. Teachers are encouraged to devise activities of their own and to welcome ideas from their students. Finally a brief history of archaeology and a bibliography have been included to give teachers an overview and to enable them and their students to learn more about the subject.

RATIONALE

Archaeology is the study of man's past through the material remains left behind. It is the aim of archaeology to reconstruct as much of man's past as possible. Archaeology is divided into two basic sub-disciplines, historical and pre-historical archaeology. Historical archaeology is the investigation of societies with written languages that were used to store and communicate information. Historical archaeology is carried out in conjunction with the analysis of these written records. Prehistoric archaeology is the investigation of societies without written records or historical traditions. Archaeology encompasses the full range of human development from its earliest traces to its most recent variations.

Archaeology is a reproductive field of study. Archaeology is both a humanity and a science, in that it draws upon and subsumes within itself the theories and methodologies of science to study and analyze the tangible remains of human activity. When one excavates a site, one is not only recording artifacts, one seeks to reconstruct a previous cultures' mathematics. science, language, and where possible, history and social systems.

Everyone is ethnocentric. That is to say that each person's world view is determined by the function and products of his or her own culture. We each need to be aware of this ethnocentricity and how it relates to our understanding of other cultures. The study of archaeology is an excellent aid to help us understand our own cultural ethnocentricity and break down biases. Archaeology along with anthropology, seeks to study and evaluate each culture as unique and from that culture's point of view. Archaeology attempts to teach that other peoples' uniqueness and culture change through time. Archaeology also helps us to understand ourselves from eternity's point of view.

Glyn Daniel has sought to define archaeology as the "study of culture through history." (150 Years of Archaeology, p. 155). The definition of culture is itself difficult and beyond the scope of this rationale. Two definitions which have received wide acceptance in the fields of archaeology and anthropology are those of Tylor and White. In 1871 Edward Tylor defined culture as:

> That complex whole which includes knowledge, belief, art, morals, law custom, and any other capabilities and habits acquired by man as a member of society.

Many pre-historic archaeologists today prefer to emphasize Leslie White's definition of culture as "the cumulative resources of human society that provides the means for non-genetic adaptation to the environment." Archaeology therefore attempts, not only in its methodology but in its basic subject matter, to encompass the entire range

of human experience.

The student and the teacher should be aware, however, that which the archaeologist seeks, human experience, is the most elusive of prey.

> There is a great deal in life of the past which we cannot capture: all the individual things, the unique, the decision, the action, the spoken word, the dying chord. What we find is something else: not the word in the air but the theatre stage and the speaker's rostrum; not the music but the flute; not the movement of armies over the battlefield but the weapons, armour and the wounds of the fallen; not the anxiety and struggle against the storm but the sunken ship; not the merchant's calculations or his joy over a good bargain but the exported vases; not the athlete's strenuous fun and pride in victory but the starting line and the monument of honor; not the terrors of conquest but the burnt out dwelling, not the grief but the grave.
>
> (The Deep Well, p. 19)

THE STUDY OF ARCHAEOLOGY FOR THE GIFTED AND HIGHLY GIFTED

It appears that gifted and highly gifted individuals can absorb information and use it as a base for further activity. They are able to sense complexity and can handle a high degree of ambiguity. Their ability to work in areas of higher levels of thinking and task-commitment characterize their learning processes.

Critical thinking skills are inherent in the very nature of the activities involved in the field of archaeology. Any archaeological excavation is going to produce thousands of artifacts and features. These thousands of bits of information must, at least, be synthesized to begin to ultimately recreate a picture of what life was like in the past. The re-creation of the past calls for analysis of finding, the bringing together of data, then evaluation and interpretation of this data.

The inter-disciplinary nature of archaeology gives the gifted an opportunity to integrate many-fields of study. The challenge of piecing together the past appeals to the problem-solving capabilities of these students. While the implication of the past for society's present and future can involve that keen sense of ethical concern so often characteristic of gifted students. Both independent and group activities are possible in the study of archaeology. Cited within the "task cards" section of this unit are activities which could provide an independent course of study for an individual student or a whole unit for a class. Archaeology seems to be a discipline that encompasses a variety of aspects appropriate to challenging the gifted.

HISTORY

The beginnings of archaeology are characterized by the inadvertent discoveries of antiquities by explorers such as Napoleon Bonaparte, who in 1798 fought the Battle of the Pyramids, visited the Great Pyramid, and supposedly came out shaking. The lure of treasure inspired many Europeans to excavate known ruins during the eighteenth century. In this manner the king of the two Sicilies ordered the excavation of the base of Vesuvius in 1738. Our own Thomas Jefferson, one-hundred and fifty years ahead of his time, anticipated modern archaeology by doing excavation in Virginia. A view of historical archaeology would be incomplete were it not to include the works of Winckelmann, Schliemann, Evans, Champollion, Petrie, Lord Carnarvon and Carter. A brief examination of the contributions made by each of these men will be given here.

J.J. Winckelmann, 1717 to 1768, wrote the History of the Art of Antiquity, in which he gave a recognizable structure to the accumulation of Greco-Roman antiquities from Pompeii. It was the first book to approach ancient art from a developmental point of view. It further demonstrated a means for understanding ancient cultures through their artifacts. The birth of archaeology as a discipline followed the model Winchelmann set. This model would allow future archaeologists to interpret the meaning of Greek sculpture by relating to the whole range of Hellenic mythology and placing it in a chronological framework. Winckelmann himself did this by a careful study and analysis of the artifacts from the cities of Pompeii and Herculaneum. He wrote of his discoveries for an exclusive little world of museum collectors and court circles.

Heinrich Schliemann, 1822 to 1890, realized a childhood dream by excavating Troy and Mycanae. Schliemann was a self-made millionaire who mastered English, French, Dutch, Spanish, Portuguese, Italian, and Russian within a period of two years. He added Swedish and Polish a year later. Marrying a Greek girl named Sophia, whose beauty paralleled that of Helen of Troy, Schliemann and his new wife embarked on their dramatic adventure. Their first expedition took them to find the ancient city of Troy as recorded by Homer in his epic poem. Instead of finding one city, no less than nine buried cities were discovered. It was in the second and third layers from the bottom they found what Schliemann believed to be the palace of Priam and the Scaen Gate. Although. the gold treasure Schliemann found we know today was Lydian and dates to the seventh century B.C., he none-the-less did find the city of Troy. Schliemann's next site to be excavated was Mycanae, the ancient kingdom of King Agamennon and his murderous wife,

Clytemnestra. According to Homer, Troy was rich, but Mycanae even richer; and the word "golden" was the adjective used to describe that city. Golden, indeed, were the treasures unearthed in the graces of Mycanae. Diadems of pure gold, ornaments in the shape of leaves, deer, doves, flowers and butterflies abounded in the graves. But the greatest find of all was the golden death mask, Schliemann believed to be of Agamemnon. The golden relics of Mycanae were of enormous value, and would not be exceeded in opulence until Carnarvon's and Carter's discovery of king Tut's tomb.

Arthur Evans, 1851 to 1936, succeeded in fully realizing the Minoan culture only glimpsed by Schliemann. Evans excavated at Knossos, located on the island of Crete, the mythological home of Zeus. Zeus, son of Earth Mother, Rhea and the child-eating Cronus, fathered King Minos. Minos is the legendary king who ruled Crete. According to legend, it was King Minos who brought Daedalus to Crete to build the labyrinth to house the minataur. The palace excavated by Evans whose rooms, corridors and halls were laid in a confusing plan may have been identified by later Greeks as the labyrinth of Minos. The result of twenty-five years of digging revealed the most pretentious palace of Greek pre-history. The palace at Knossos had columns of chalky white, walls decorated with paintings Evans described as "modern", drainage systems, luxurious bathrooms, ventilation system, ground-water conduits and water chutes. It was the size of Buckingham Palace. Today, modern archaeologists are critical of the excavation techniques of Schliemann and Evans but they are responsible for rediscovering the Greek bronze age. We think our accomplishment great if we can add but a footnote to their work.

Champollion, 1790-1832, a highly gifted hypersensitive youth with an intense personality, was born in Figeac, France. He taught himself how to read at age five. At age thirteen he began to learn Arabic, Syrian, Chaedean, Coptic and Old Chinese. At age seventeen he applied for admission to the Lycee of Grenoble, France. The professors were so overwhelmed with Champollion's reading of a whole book he had sketched out, entitled Egypt Under the Pharoahs, that instead of admitting him as a student of the Lycee, they embraced him as a member of the faculty. Already Champollion was recognized for his precocious intellectual development. Physically, too, he was beyond his age. With determination he declared, "I am going to decipher the hieroglyphics. I know I will." In order to accomplish this, he would have to add to his list of accomplished languages Sanskrit, Arabic, and Persian. His intellectual process extended to his writing a Coptic dictionary. Coptic was a language spoken in Upper Egypt up to the seventeenth century. Champollion involved himself in all of these preparations before he fulfilled his "I am going to decipher the hieroglyphics" prophesy. The

Rosetta Stone was unearthed by an unknown soldier at Rosetta, Egypt. The stele was three feet nine inches in length, two feet four and one-half inches in breadth, and eleven inches in thickness. It was made of basalt. Three columns of writing appeared on the polished side of the stone. The first column, fourteen lines in length, consisted of hieroglyphics; the second, thirty-two lines long was written in Demotic script; the third, fifty-four lines long, in Greek. Demotic is a short hand form of hieroglyphics. Champollion hit on the idea that hieroglyphic pictures were letters, or more precisely phonetic symbols. The same letter signs were used to spell the same phonetic signs. Hieroglypics, further, uses only consonants – no vowels. To read it, one reads into the face of the animals and figures.

Petrie, 1853, is the third archaeologist who was a highly gifted person. This historical treatise has already spoken of Schliemann and Champollion. Petrie, also precocious, is reported to have shown an extraordinary interest in Egyptian excavations at the age of ten. At that tender age he evolved the principle that was to guide him throughout his lifetime: "Reverance and the drive for knowledge must each get its proper share. The Egyptian soil must be literally scraped, grain by grain, not only to see what was hidden in its depth, but also to recognize how things had been disposed while still in the light of day." Petrie published ninety scientific volumes. His first archaeological research was done at Stonehenge, England, but for forty-six years he dug and published his research findings on Egypt. Petrie found the Greek town of Naukratis, dug the Temple of Ramses, penetrated the Great Pyramid of Cheops and the tomb of Amenemhet. Perhaps his greatest contribution to archaeology and to future archaeologists in his use of "seriation." Seriation is the use of a series or sequence of pottery and pottery styles to determine chronological relationship. Petrie established a classification of "sequence dates", ranging from one to sixty. Petrie started his dating with number forty and went through number sixty.

Howard Carter's and Lord Carnarvon's discovery of the tomb of Tutankhamen (King Tut) on November 5, 1922 represents the summit of success in archaeological efforts, the majesty of success in archaeological treasures. Work to find King Tut's tomb began in the autumn of 1917. The partnership of Carnarvon and Carter was an unusually happy one. Carter was the informed scholar, having had experience with Petrie. He conducted his investigation for the tomb using exact scientific method and discipline. His primary interest was the solving of cultural mysteries. Lord Carnarvon was a sportsman, gentleman, world traveler, and graduate of Trinity College, Cambridge. His interest in antiquities began in his youth when he haunted antique shops. He became a passionate collector of old etchings and drawings. His acquaintance with Egypt occurred in 1903 when he left England in

pursuit of a milder climate. This pursuit was the result of a road accident in which he was badly hurt. For the rest of his life he had difficulty breathing. Financing for the excavations was provided by Lord Carnarvon, who came into a large fortune at age twenty-three. For five years the Carnarvon-Carter team worked in harmony uncovering "nothing of real value." One last season would be devoted to digging by Howard Carter and financing by Lord Carnarvon. The Valley of the Kings, site of previous expeditions, had yielded the entrance to the tomb of King Ramses VI. Funerary materials were unearthed close to the tomb. This was an important but small archaeological find. During the last winter, Carter concentrated on tearing down foundations of the workmen's huts that were located at the base of the entrance of the tomb of Ramses VI. Scarcely had the foundations been torn down and the soil cleared away when Carter was upon the entrance to the tomb of Tutankhamen, richest in all of Egypt. "The dramatic suddenness of the initial discovery left me in a dazed condition," Carter writes. Feverishly the work went on through the afternoon of November 24, 1922 when workmen shoveled the last of the flight of steps free of rubbish. Down sixteen steps Howard Carter and the whole world descended to stand before one sealed door, then along a passageway to a second sealed door, to gaze at the greatest treasure in archaeological history. With the aid of a candle, Howard Carter peered through the second sealed door into the antechamber. Unable to contain his excitement any longer, Lord Carnarvon finally asked, "Can you see anything?" To which Howard Carter gave his famous answer, "Yes, wonderful things." These wonderful things consisted of treasures of gold coaches; a gilded throne; vases of alabaster; two royal statues, gold kilted, gold sandalled, armed with mace and staff; four shrines one inside the other, each one more gloriously carved than the former ones; the sarcophagus made of a single block of yellow quartzite; a golden and lapis mask covering the head and shoulders of the Pharoah; and one-hundred forty three pieces of jewelry inside the mummy wrappings. The student will want to acquaint himself with this greatest find in two-hundred years of archaeology history by reading and viewing the various books and visuals available through book stores and museums.

"The discovery of the tomb of Tutankhamen represents the very summit of success of archaeological effort." Thematic material was supplied by Winckelmann, treating archaeology as a science. Champollion added to the action by deciphering the Rosetta Stone. Schliemann raised the excitement of the archaeological drama with his excavations at Troy and Mycenae. Evans extended this drama by digging at Knossos. But it was the discovery of Tutankhamen's tomb by Carter and Lord Carnarvon that summed up on a grandiose scale everything previously accomplished throughout the whole range of archaeological investigation.

The discovery of the tomb of Tutankhamun was a symbolic watershed in the history of archaeology. The spectacular nature of the finds and the dramatic background of Carter's success are the romantic high point in the history of the field. More than one archaeologist has remarked that by 1930, "the Gold Mask days of archaeology were over," and been thankful for it. The history of archaeology in the past fifty years has been a refinement of techniques and expanding the horizons of knowledge gained in the nineteenth and early twentieth centuries.

The most significant advances in archaeology have come in the contributions of the sciences to dating techniques. Most important of these contributions is radio-carbon dating; other techniques include dendrochronology, thermaluminesence, and argon-potassium dating. These new techniques permit archaeologists to be more precise in their use of evidence.

In the areas of analysis and interpretation archaeology has expanded on all fronts and since the Second World War questions of a more general nature have been considered, for example, when and where did sedentary agriculture begin and why did urbanism develop in the ancient near east. We do not yet know the answers to these and other questions raised in the past fifty years.

Archaeology in the New World followed in general ways the development of archaeology in the Old World. There were, however, significant differences in the cultures discovered and excavated and therefore differences in the development of technique and theory. The most important difference between the Old and New Worlds was the fact that the cultures encountered by the Europeans in the fifteenth and sixteenth centuries were technologically in the Late Stone Age and for the most part pre-historic. By pre-historic we mean lacking historical traditions and a written language to store and communicate information. With the exception of the Maya of Central America and the peoples of the central valley of Mexico there were no written languages in the Americas. Today our knowledge of the heiroglyphic scripts of the Maya and Central Mexico is in the formative stage, and we are now only able to read some names and dates with confidence.

Archaeologists in the old world were, to a great extent, concerned with the discovery and excavation of the great historical cultures of the ancient near east, Egypt, Greece and Rome. Archaeological thought was dominated by art history and a concern with language through the translations and interpretation of excavated texts. Pre-history was regarded as prologue to the great literate civilizations.

Archaeology in the New World was required to begin from a different point of view; in the Americas pre-history was all there was. Following a period of gross speculation the major emphasis of American archaeology from 1840 to the first World War was to classify and describe the different cultures of the Americas.

Significant for the development of American archaeology was the union of archaeology and anthropology in the nineteenth century. Anthropology began in the nineteenth century as a fusion of different philosophical trends such as biological evolution, cultural evolution and social progress. Anthropology is perhaps best defined as the science of human kind which seeks to understand man as a biological organism and a culture-bearing creature. This broader perspective of anthropology and the emphasis on culture offered to scholars a means of understanding the history of the peoples of the Americas before European contact. A major innovator in this respect was Franz Boas, who at the end of the nineteenth century, argued that scholars could reconstruct the history of a given society only after rigorous collections of all kinds of information: archaeological, linguistic and ethnographic. Boas emphasized the importance of careful archaeology for the collection of pre-historic evidence.

From the end of the First World War and 1960 American archaeology was concerned with the classification of American cultures and developing a chronological framework for American pre-history. One method developed to obtain a chronology is called the Direct Historical Method. This approach called for the archaeologist to work back from historical or contact levels to obatin a chronology. A second approach was developed by A.V. Kidder; this was called the Historical Cultural Approach, and is outlined below:

I. Site Research
   a. Historical research
   b. Interview local inhabitants
II. Zone Survey
   a. Aerial examination and photography
III. Surface Survey
   a. Record features (i.e. non-portable wall, artifacts, etc.)
   b. Preliminary survey
IV. Actual Excavation
V. Analysis of findings
   a. When and where
VI. Interpretation
   a. How and Why

Kidder developed the cultural historical approach to answer the question, who do cultures change? By the late 1940's the value of the method was recognized, but it was realized that it did not answer Kidder's basic question. The history of American archaeology in the past thirty years has been concerned with developing interpretive models. We are now in what might be called the interpretive period where scholars are attempting to develop theoretical models or approaches which best explain, based on the evidence, why cultures rise and fall, and why cultures change through time.

The archaeologist cannot simply recover and record artifacts. The archaeologist must also interpret the finds in order to make the past accessible. Interpretation and synthesis are as much a part of the archaeologist's work as excavation and classification. This necessity to interpret and synthesize has led archaeologists to adopt certain theoretical approaches or models of analysis. We shall see that there is no one comprehensive and satisfactory theory or model, but several which compete with one another as offering the best way to interpret evidence. Because these theories, either consciously or unconsciously, influence all archaeological writing today, we offer here a brief resume or summary of the most important ones. These theories are most often applied to pre-historic archaeology where no written record exists.

A major theoretical approach to the analysis of archaeological evidence was worked out by the Danish scholar Christian Thomsen (1788-1865) who first proposed the Three Age System – Stone Age, Bronze Age and Iron Age – for the classification and chronology of pre-historic artifacts. Thomsen proposed this system as a means of classifying the collections in the National Museum in Copenhagen in a businesslike way. Thomsen reasoned that pre-history must have been divided into three ages, and in that order, for the simple reason that man would not have used stone and bone for his tools and weapons when the more durable bronze was available and that bronze must have been superseded by the harder and more efficient iron.

Thomsen's successor at the National Museum was Jen Jacob Worsaae (1821-85). Worsaae may deserve the title of the world's first professional archaeologist. When he was only twenty-two Worsaae published the book Danmarks Oldtid which was a definative work on the antiquities of Denmark. For the remainder of his life Worsaae worked in the field and demonstrated the validity of Thomsen's Three Age system and expounded the scientific principles to be used in excavation. Above all, for the careful excavation and recording of artifacts, Thomsen believed that everything about a site was a potential source of information.

A second nineteenth century theory which has demonstrated its validity over time and space is stratigraphy. Stratigraphy is borrowed from geology and holds that in a deposit of multiple layers the order of deposit reflects the law of superposition – the lowest layer was deposited first and the uppermost last. The common sense of this theory is self evident to us today and it forms the back bone of modern excavation. Although it was first put forward in the middle of the nineteenth century, stratigraphy was not applied to archeological excavation until 1880 when General Augustus Lane-Fox Pitt Rivers used it to analyze the excavations of Iron Age villages of his estates at Cranborne Chase in England.

One theory which is sharply criticized in many circles, but is nonetheless often used is Cultural Evolutionism. Cultural evolutionism, or more properly Unilinear Cultural Evolutionism was a product of nineteenth century optimism and regards the passage of history as a continuous movement towards a greater and greater fulfillment. In the nineteenth century that fulfillment was almost always the contemporary civilization of western Europe. Lewis H. Morgan developed this scheme:

Civilization:	Writing
Barbarism:	Plant and Animal Domestication
	Pottery
Savagery:	Bows and Arrows
	Fishing
	Hunting

It was a simple matter to study a particular culture or community and then fit it into this ladder of cultural evolution.

While no one today would accept a theoretical scheme as facile as Morgan's, the idea of cultural evolution is still very influential in archaeological thought. Cultural evolution as generally used is disputable because it presumes that a hierarchy of values exists in history and its development. Also, one learns nothing or says nothing about the builders of Stonehenge or the ancient Egyptians, if one asserts that modern religions are higher or "truer" in some way. Modern ethnographers, working in the field, have demonstrated that communities or cultures, even so-called primitive cultures, are organic wholes which follow their own laws and reach a fulfillment through intergration and the realization of their inherent possibilities. No culture can be regarded as some kind of experimental stage of humanity on its way to a greater and greater perfection.

Marxism is another theory which influences contemporary archaeological thought. Marxism is generally a monistic theory which offers one single key to everything that occurs in a society. This key is the mode of economic production, its functioning, the class divisions and conflicts it generates, its limitations and, in the end, its determining effect on the outcome of events. Marxism as a general theory has benefited archaeological research in many ways, in that it places its emphasis on economic, technological and production factors; however, there are several limitations to the value of archaeological Marxism. The theoretical basis of archaeological Marxism is open to dispute in that it starts from that which it sets out to prove, namely, that a specific kind of conformity of an economic nature should hold good for the development of all human socieities in all ages. The very emphasis of marxism on technology and production can also destroy the perspective of the archaeologist, many things contribute to the development of human societies and to history, the means of production

is only one element that must be taken into account if we are to understand human society.

The failure of these and other theoretical approaches to satisfy all the questions raised by archaeological evidence has lead archaeologists to look to other theoretical approaches or models. An important influence on contemporary archaeologic thought is Systems Theory and the Cultural Ecology of a people or community. Borrowing from computer technology, systems theory attempts to compensate for the shortcomings of Cultural Evolutionism and Marxism by not placing an emphasis on any one factor in culture's development, i.e. technology.
Models of analysis based on systems theory recognize that a culture is more than the simple sum of all of its parts -- for example family and kinship, organization, technological development or religious belief systems. Such models seek to understand a culture through an analysis of its component parts and their relationships. The process of cultural change is understood by looking to any change in one component and the effects of that change on other parts of the cultural system.

A second basic type of model used to understand cultures and why they change is provided by Cultural Ecology. This approach comes from the wider field of ecology, and applied to archaeological data, cultural ecology provides a sophisticated means to interpret the interaction between culture and environment. Cultural ecology involves the general tenets of systems theory, in three complimentary facets. The three are actually three complex sub-systems. The three facets, which are actually three complex sub-systems, are: the physical environment (habitat), the biological environment (biome), and the cultural environment (other near by cultures). For any given society, the sum of specific interactions within the overall cultural environment describes the nature of that society's cultural adaptation. Any change in one or more of the sub-systems will result in overall changes in adaptation.

The systemic view of culture and the adaptive concept of cultural ecology are combined in the contemporary theory of Multilinear Cultural Evolution. This theory sees the evolution, of a culture as the cumulative changes in a cultural system which result from the continuous process of cultural adaptation over long periods of time. Unlike Morgan's nineteenth century theory of unilinear cultural evolution, modern cultural evolutionism does not see any single inevitable course of change which is followed by all societies. While no single evolutionary path is charted, Multilinear Cultural Evolution does postulate that there are broad general stages through which all cultures pass: for example, Band, Tribe, Chiefdom and State. None of these stages is absolute and intermediate or transitory stages can be found. Multilinaer cultural evolution studies the unique course of

change followed by a specific culture in order to understand why it does or does not follow the general developmental stages outlined above. Multilineal cultural evolution holds within itself seeds of presumption similar to its unilineal counterpart.

We must end this discussion of archaeological theory with a general warning. Theory attempts to transcend evidence in that it presumes a conformity in events at different levels and then applies this theoretical conformity to archaeological or historical materials. We have noted the shortcoming of Unilinear Cultural Evolution and Marxism. We must bear in mind that later approaches of systems theory, Cultural Ecology and Multilinear Cultural evolution are as much a product of our own contemporary cultural environment as the nineteenth century theories were of theirs. Our own contemporary theories will demonstrate their inadequacies soon enough.

Unless a theory or model of analysis has demonstrated its worth over time and space, such as the Three Age System or stratigraphy, it must be approached with caution. The true value of these different theories is not that they are some kind of short cut to historical insight, but that they cause a constant shifting of the central point of discussion. And yet, despite these warnings, we must not end this discussion on too skeptical a note. As stated above, the archaeologist must make some kind of synthesis to make the past accessible and lucid, theories of interpretation are valuable for this synthesis. We must never forget, however, that the archaeologist is dealing with human beings who seldom conform to formulae or rules.

Task Cards

The following are specific Tasks designed to be given to students interested in the independent pursuit of archaeology. The tasks are divided according to the area of Bloom's Taxonomy into which they fall. It will be obvious that some of these activities would be appropriate for younger students; while others would meet the needs of secondary students. No attempt, however, has been made to divide the tasks by grade level since the assumption is that highly gifted students are able to cut across many levels. Each card has been divided into its Bloom's category, its subject, background information, the task to be done and suggested materials.

Taxonomic Categories: K, Ap, An, S

SUBJECT: **HIEROGLYPHICS**

OBJECTIVE (S): To develop an understanding in deciphering an ancient language. To allow the student to code a poem into the hieroglyphic alphabet.

INTRODUCTION: An epigrapher is an archaeologist who is expert in decoding ancient languages, a difficult job because many old languages are no longer spoken or written. The epigrapher must decode inscriptions or writings symbol by symbol.

At times the archaeologist finds that no alphabet is involved. Instead the ancient people may have used pictographs, picture symbols.

Hieroglyphics were very difficult pictographs to decipher until the experts realized that the signs were alphabetic and phonetic, not simply pictures representing ideas.

Learn more about hieroglyphics.

ACTIVITY: After your study of hieroglyphics, write or choose a poem and cipher the poem into hieroglyphics. Make a large chart to show your work. Compare hieroglyphics to petroglyphs.

or

Make a filmstrip and tape about your research on hieroglyphics. The filmstrip should be at least 20 frames long.

MATERIALS NEEDED: **J400** From Drumbeat to Tickertape
IU-Kitl Edward Osmond pp. 25-35. Multi-media Kit available through the Bucks County Intermediate Unit on hieroglyphics.

Taxonomic Categories: Analysis/Synthesis

SUBJECT: **RESEARCHING THE DIG SITE**

OBJECTIVE(S): Students will go through the same process that the archaeologist does in determining a likely site for a dig.

INTRODUCTION: It is said of the archaeologist that his most helpful trait is luck. This may be true, but any archaeologist involved in a major find put in many days of laborious research before proceeding with excavation. Sometimes the most remote sources of information have provided the most significant clues to the dig site.

ACTIVITY: Have three or four students in the class bury an archaeological "treasure". The same students will now develop evidence (i.e. maps, documents, hearsay, etc.) which, when all put together should lead the students to the dig site.

Once the class determines the site, care should be taken not to damage the "treasure" during the dig.

MATERIALS NEEDED: Historical Archaeology – I.N. Hume 1975 W.W. Norton Co. N.Y.
Field Methods in Archaeology – T.R. Hester, et. al,1975,Mayfield Publ. Co.

Taxonomic Categories: Analysis, Application

SUBJECT: **ABOVE-GROUND ARCHAEOLOGY**

OBJECTIVE (S): Student will research a prospective archaeological site without actually having to dig the site.

INTRODUCTION: The most crucial part of an archaeological dig is the part that is the most tedious and that most people forget; the research preceding the dig. This area is referred to as Above Ground Archaeology and includes reading old letters, referring to maps and historical sources, talking to people. In other words, it is of paramount importance to find out as much about your proposed site as possible before digging.

ACTIVITY: Have students bring in an item at least fifty years old that contains pictures and/or writing. Magazines, newspapers, diaries, snapshots are examples of the types of memorabilia which would be useful for the activity.

After reviewing the items, have the students develop a scenario of life in the early 1900's and the significant differences with life as we know it.

Taxonomic Categories: K, C, Ap, S

SUBJECT: **SALVAGE ARCHAEOLOGY – ASWAN DAM**

OBJECTIVE (S): To allow the student to realize the value of salvage archaeology.

INTRODUCTION: The Nile Valley in Egypt was the scene of the first archaeological salvage project.

Toward the end of the 19th century, Egypt needed a larger water supply for agricultural purposes. To control the flow of the Nile-storing water in November and December during surplus, letting it out in May, June and July for crop use – the Egyptians built the Aswan Dam 600 miles above Cairo. This project was completed in 1902 and flooded 140 miles of the Nile Valley in Upper Egypt.

During nine months, the flood waters covered the sacred isle of Philae, an ancient religious center, covering all but the tops of the ancient and beautiful temples.

As need increased, the Egyptians decided to build the dam higher and in 1968, to build a new dam, four miles above the old one. Archaeologist became concerned about what other ancient ruins might be flooded.

The Egyptian government accordingly set aside funds to survey records and, if possible, excavate sites that would be covered by the enlarged lake.

ACTIVITY: Find out about the Aswan Dam Project, and the frantic rush to save antiquities before the waters rose.

Do ONE of the following:

1. Write a television documentary about the archaeological "saves"
2. Obtain some crea-stone and carve a temple front from Abu Simbel. Include this carving in a diorama of the surroundings.
3. Present your findings to a designated group using A-V materials.

MATERIALS NEEDED: Resource books on Aswan Dam and Abu Simbel

JH913.03 Baldwin, G.C. Race Against Time G.P. Putnam's Sons, N.Y. 1966 Gerster, George, "Threatened Treasures of the Nile" National Geographic Magazine, Oct. 1963

Taxonomic Categories: Knowledge

SUBJECT: **ARCHAEOLOGICAL TECHNIQUES**

OBECTIVE (S): To develop familiarity with common archaeological terms.

INTRODUCTION:
a site
a datum point
a square
a grid
the strata
a sherd
an artifact
a fossil
in situ
a tell
a feature
a balk
a dig

ACTIVITY: Make a matching game of archaeological terms. Cut index cards in half. Write each of the words above on the blank sides. Use the lined sides to write your definitions of the terms. Have your classmates try to match the words with the proper definition. Code the backs of both cards with a symbol, number or color, so that the player can check correctness.

MATERIALS NEEDED: Index cards

Filmstrip and cassette: Detectives with Degrees
Multimedia Productions, Inc., Stanford, CA 94305
Magnusson, Magnus Introducing Archaeology,
Henry Walk, N.Y. 1972.
Porell, Bruce, Digging the Past, Addison-Wesley, 1979.
World Book Encyclopedia, "Archaeology"
Dictionary

Topographical Maps Catalog – U.S. Geological Survey
1200 E. Ends St.
Arlington, VA.
22202

Satellite photographs – Geographic Computer Search
EROS Data Center
Sioux Falls, S. Dakota
57198

Barry Kent – State Archaeologist
Wm. Penn Memorial Museum
Box 1026
Harrisburg, PA. 17608

Taxonomic Categories: Comprehension

SUBJECT: **ARCHAEOLOGICAL TECHNIQUES**

OBJECTIVE (S): To create an understanding of the archaeologist's methods of record keeping.

INTRODUCTION: It is essential that an archaeologist keep accurate records because once an artifact has been removed it is out of place forever. Its relationship to everything else in the dig can only be pieced together from the records of exactly where it was found.

ACTIVITY: In a large flat box, make a model of the site of a dig, showing datum point, grid, balk, and strata in two of the squares.

MATERIALS NEEDED: Box, soil, sand, string, stick.

Filmstrip and cassette: Detectives with Degrees Multimedia Productions, Inc., Stanford, CA. 94305

Porell, Bruce, Digging the Past, Addison-Wesley, 1979

Deetz, James Introductory Archaeology: In Small things Forgotten

Taxonomic Categories: Application

SUBJECT: **ARCHAEOLOGICAL TECHNIQUES**

OBJECTIVE (S): To enable the student to use a classification technique.

INTRODUCTION: In the early 1800's many artifacts from ancient civilizations were being uncovered. The King of Denmark amassed a large collection of many items, and gave the Danish scholar Christian Thomsen the tremendous task of organizing these to display. Thomsen developed the idea of classifying them according to the material from which they were made-stone, bronze or iron. Out of this system grew the technique of dividing prehistoric time into Stone Age, Bronze Age and Iron Age.

ACTIVITY: Select twenty small items in your classroom (or be a risk-taker and use all the items in the classroom wastebasket) and classify them according to the material with which they are made. Try to set up a chronology: Which material was available in early times? Are there any materials that must be 20th century?

Set up a display labeling your "ages" to correspond with the items classified by a particular material.

MATERIALS NEEDED: 20 miscellaneous small items
Information on "Christian L. Thomsen", World Book Encyclopedia.

Taxonomic Categories: Analysis

SUBJECT: **ARCHAEOLOGICAL TECHNIQUES**

OBJECTIVE (S): To help students discover the reason for the development of a tell.

INTRODUCTION: Why were the same sites used over and over, building one city upon the ruins of another? What factors of land formation or resources might attract settlers? Did the pioneers who settled the West in our country look for similar things?

ACTIVITY: Make a chart or overhead transparency comparing the factors that were probably important for prehistoric settlements and those that were important for western settlers. Make a tape recording to explain your chart. Try to narrate the explanations with two different accents-a western drawl for the pioneers. (You are on your own for a creative accent for the ancient civilization!)

MATERIALS NEEDED: Oaktag or transparency, markers, overhead projector,Cassette tape, tape recorder

The Human Adventure, Ancient Civilization, Concepts and Inquiry: The Educational Research Council Social Science Program, Allyn and Bacon, 1975

Taxonomic Categories: Synthesis

SUBJECT: **ARCHAEOLOGICAL TECHNIQUES**

OBJECTIVE (S): To create a simulated site of three civilizations.

INTRODUCTION: Imagine a prehistoric hunting ground thousands of years ago. The tribe hunted with stone weapons and gathered food that grew wild. Enemies came upon this group just as they were dividing a large animal that had been killed. They were greatly outnumbered, so the hunters dropped everything and ran. For fear of the enemies, they never returned to the site, and their tools became buried by leaves and earth.

Many years later a small town grew up on this same site. The people did simple farming using bronze tools and lived in huts where they cooked and made clothing. As they gathered together to offer sacrafice to their gods for a good harvest, a warring tribe overcame them and burned their town.

Much later a small city grew up in this same area. It was a busy trading center and, although they did not have writing, they kept pictograph records of their business exchanges on clay tablets. The wealthier tradesmen bartered for some decorations for themselves or their homes. A terrible plague wiped out most of the inhabitants in one year, and the few survivors deserted the city. Winds and rain deteriorated the neglected buildings. Gradually the soil blew in over them and new vegetation grew.

ACTIVITY: Make a plaster model of the strata of these three civilizations. Show remnants of civilizations in the strata, separated by charred or sterile layers. Try to make your model as authentic as possible by learning the types of artifacts that might be found from the Stone Age, Bronze Age and Iron Age.

MATERIALS NEEDED: Box, plaster, clay to make artifacts, stone, metal, bone.

Taxonomic Categories: Evaluation

SUBJECT: **ARCHAEOLOGICAL TECHNIQUES**

OBJECTIVE (S): To appreciate the complexity of current archaeological problems.

INTRODUCTION: When artifacts were first excavated, they were treated like prizes in a treasure hunt. The "archaeologist" would bring back to his country everything that was transportable. Now many countries have Antiquities Laws preventing anything from being taken out of that country. If new museums cannot be started and old museums cannot add to their collections, many people will not be able to see artifacts from humanity's stages of civilization unless they can afford to travel to each country.

ACTIVITY: Pretend that a United Nations tribunal is attempting to find a fair solution to this problem. You are an attorney arguing the case between one government and the archaeologists from a museum in another country. Choose a position and write or tape record a brief to support your case. If you wish you may propose a compromise.

Taxonomic Categories: Analysis/Synthesis

SUBJECT: **CURRENT ARCHAEOLOGY**

OBJECTIVE (S): To help students become aware of the importance of archaeology in today's world.

INTRODUCTION: Although archaeology studies ancient civilization, it is an important part of our own society as well. Its triumphs, failures and problems are consistently reported in the media. Once you begin to take note, it is amazing how many articles can be found relating to archaeology.

ACTIVITIES: Collect all news articles concerning archaeology, and highlight the major ideas in the article with yellow magic marker. Make a montage with these articles. Use your creativity for a title (such as OLD IS NEWs) and consider placing the articles in the shape of a pyramid, temple, or other archaeological feature.

MATERIALS NEEDED: Newspapers, magazines, oaktag
Macaulay, David, Motel of the Mysteries, Houghton, Mifflin Co., Boston 1979
(for a humorous account of 20th centruy artifacts)

Taxonomic Categories: Knowledge/Synthesis

SUBJECT: **ARCHAEOLOGICAL VOCABULARY**

OBJECTIVE (S): To familiarize student with terms used by the modern archaeologist.

INTRODUCTION: The following terms are used by archaeologists:
patri' ocal
matrilocal
radiocarbon
stratigraphy
prehistory
hieroglyphs
petroglyphs
thermoluninescence
dendrochronology
seriation

ACTIVITY: Find out the meanings of these words and dev a crossword puzzle using them.

MATERIALS NEEDED: Graph paper
Archaeology resource books
Dictionary

Taxonomic Categories: Evaluation

SUBJECT: **POTTERY**

OBJECTIVE (S): To evaluate the importance of pottery in an archaeologist's work.

INTRODUCTION: Pottery is not very important in our lives. Other than our dishes, or the tile on a bathroom floor, we use very little pottery today. Why, then, is pottery so important to an archaeologist in understanding an ancient civilization?

ACTIVITY: Write these three questions on index cards:

1. Why is so much pottery found at "digs?"
2. What can we learn about what happened in a society from studying pottery?
3. How is pottery dated?

Write or tape record your own guesses before you do your research. Show three friends these questions, and write or tape record their answers also.

Now research the answers to these questions. Write a skit of an interview show. You are the interviewer questioning three famous archaeologists (the three friends who replied to your questions). Prepare the script for them with the information you have discovered. Have some pieces of pottery or pictures to show on a camera closeup to illustrate their answers.

Include some humorous commercials such as a Stone Age woman wishing she had Lemon Joy to make her pottery shine!

MATERIALS NEEDED: Gonen, Rivka. Pottery in Ancient Times. The Lerner Archaeology Series. Lerner Publications Company, Minneapolis, 1974

Taxonomic Categories: Application

SUBJECT: **ARCHAEOLOGICAL TECHNIQUES**

OBJECTIVE (S): To enable student to experience the care required to unearth an artifact.

INTRODUCTION: Often artifacts are found encrusted or encased in hardened material which must be carefully removed without damaging the item. Archaeologists scrape away this material bit by bit, using small brushes and dental picks as they get closer to the surface of the object.

ACTIVITY: Make a small clay object. Fire it or use glossy paint to give it a moisture-proof surface after it is thoroughly dry.

Get an empty milk container. Mix 2 parts plaster and 1 part vermiculite, and add water until it is the consistency of oatmeal. Quickly fill the container half full. Put in your object and fill the remaining space. When dry, remove the container and gently work to scrape away the hardened material and uncover your find!

MATERIALS NEEDED:
Empty milk carton
Plaster
Vermiculite (from a plant store)
Clay
Paint
Wooden popsicle stick, small brush, small pick

Taxonomic Categories: Analysis/Synthesis

SUBJECT: **ARCHAEOLOGICAL TECHNIQUES**

OBJECTIVE (S): To enable student to experience the patience and analytic ability required to piece artifacts together.

INTRODUCTION: Rarely does an archaeologist have the good fortune to unearth a complete unbroken piece unless it is found in an untouched tomb. More frequently articles were abandoned because they were broken and no longer useful, or were buried in some violent manner from war, flood, earthquake or volcano. Piecing together the fragments is a painstaking, but rewarding aspect of archaeology.

ACTIVITY: Make two clay vessels and decorate them if you wish. When they are hard, put them into a double paper bag and drop them onto a hard surface. Now try to reassemble them. It will be somewhat easy for you since you know the original shape.

If you are doing this with another classmate, exchange bags and reconstruct your classmate's pottery.

MATERIALS NEEDED: Clay, paint, paper bags,
Glue (Water soluable glue is used in case the archaeologist makes a mistake)

Taxonomic Categories: Application

SUBJECT: **LANGUAGE**

OBJECTIVE (S): To introduce the student to cuneiform writing.

INTRODUCTION: The Sumerian people developed cuneiform writing from picture writing. Drawing a line-picture on a clay tablet raised a ridge. It was neater to press a shape into the clay with a wedge-shaped stylus. The name, cuneiform, comes from the Latin "cuneus" meaning "wedge."

ACTIVITY: Find out how cuneiform was translated. Write a newspaper headline and short article telling about the breakthrough, or tape a radio news report. Copy some of the cuneiform characters by pressing a wedge-shaped stick into wet clay. Display your tablet with the translation of the words you have written.

MATERIALS NEEDED: Clay (self-hardening or firing)
Stylus (ask Art Teacher for clay tools or use cuticle stick)
Osmond, Edward, From Drumbeat to Tickertape, Criterion Books, New York 1960
"Cuneiform", World Book Encyclopedia
Actual cuneiform tablets may be seen in the columns of the large room at Henry Mercer's Fonthill in Doylestown
Ceram, C.W., Gods, Graves and Scholars, Bantam Books, N.Y., 1967

Taxonomic Categories: Application

SUBJECT: **ANCIENT LANGUAGE**

OBJECTIVE (S): To use a basic knowledge of hieroglyphic writing form.

INTRODUCTION: Egyptian hieroglyphs were pictures that stood for sounds or ideas. They used only consonants, and had no word separation and no punctuation.

ACTIVITY: Choose five phrases such as "the bear went over the mountain." Write them in the hieroglyphic manner. Ask your classmates to interpret them. Be sure to include an answer key.

MATERIALS NEEDED: Osmond, Edward, From Drumbeat to Ticker-tape, Criterion Books, New York, 1960

Life Magazine, 1st Re-issue-Denise Schemandt -Besserat, How and Why Writing Started

Taxonomic Categories: Analysis

SUBJECT: LANGUAGE

OBJECTIVE (S): To examine the languages on the Rosetta stone

INTRODUCTION: In 1799 one of Napoleon's soldiers in Egypt found the Rosetta stone. The same message was written in three languages, Hieroglyphics, Demotic and Greek. Until this was found it was believed that Egyptian writing was only a picture writing which no one had been able to interpret. Now it was realized that the pictures were symbols which stood for sounds and syllables, much as a modern day Rebus does.

ACTIVITY: Borrow the facsimile of the Rosetta stone from the I.U., or find a clear picture. The names of kings and queens were always placed within an oval called a cartouche. Find the cartouche. The name is Ptolemy. Now try to find the name Ptolemaios in the Greek portion. Complete the attached activity and then try to find some of the symbols in the hieroglyphs of the Rosetta stone.

MATERIALS NEEDED: Rosetta stone reproduction
Enlarged picture of the Rosetta stone
(can be found in Jackdaw entitled Writing)

Activity from Games Magazine, The Hieroglyphic Mystery, March/April 1979
Jones, Thos., Pathways to the Ancient Past
Gelb, The Study of Writing

Taxonomic Categories: Synthesis

SUBJECT: **CULTURAL UNIVERSALS**

OBJECTIVE (S): To use the concepts of cultural universals to create a new culture.

INTRODUCTION: Categories of organization and activities that are found in every culture are called "cultural universals."
These include:
- Political organization
- Family and Kin
- Food, clothing, shelter
- Communication
- Economics
- Technology
- Beliefs and rituals
- Creative expression

ACTIVITY: Develop a culture of your own. It may be past, present or future (land, underwater or space). Create artifacts representative of the cultural universals. Make up a descriptive card for each item. Display items in the classroom. Have classmates determine what each item is, its function, and what area of cultural universals it represents.

OR Bury your artifacts outside or in a large box of sand or sawdust. Organize a "dig" using archaeological techniques of gridding the site. Have the excavators fill out a provenience sheet describing each item unearthed. Compare this with your card for each item to see how close they came to your idea in creating the artifact.

Taxonomic Categories: Comprehension/Analysis

SUBJECT: **CULTURAL UNIVERSALS**

OBJECTIVE (S): To develop an understanding of the concept of culture and analyze the cultural universals of two ancient cultures.

INTRODUCTION: One of the definitions of culture in Websters New Collegiate Dictionary is, "The customary beliefs, social forms, and material traits of a racial, religious or social group."

Included in this are areas that are found to be in every culture, termed "cultural universals" such as:

- Political organization
- Family and Kin
- Food, clothing, shelter
- Communication
- Economics
- Technology
- Beliefs and rituals
- Creative expression

ACTIVITY: Choose two ancient cultures. Make an illustrated chart, booklet or bulletin board comparing the cultural universals of the two groups.

MATERIALS NEEDED:

Filmstrips and cassettes
Encyclopedia Britannica Educ. Corp.
The Birthplaces of Civilization (from series No. 10570)
The Rise of Mesopotamian Civilization (series 10570)
Social Studies School Service
5,000 years of Egyptian Civilization Part 1, RLBIZC
Pompeii EUF38C
The Incas of Peru MM7047C

BOOKS:

Through Greek Eyes

Greek Art and Architecture

Greek Everyday Life

The Human Adventure, Ancient Civilization; Concepts and Inquiry. The Educational Research Council Social Science Program, Allyn and Bacon Inc., 1975.

Scott, Nora, The Daily Life of the Ancient Egyptians, Metropolitan Museum of Art

Taxonomic Categories: K. An. S. E

SUBJECT: **HEINRICH SCHLIEMANN'S SEARCH for a LOST CITY**

OBJECTIVE (S): To acquaint the student with the life's work of H. Schliemann

INTRODUCTION: Heinrich Schliemann's quest for the lost city of Troy began with his reading of Homer's epic poem, The Iliad. As a young boy, Schliemann was fascinated by the stories of Troy and its heroes. He became obsessed with someday locating the ancient city. Finally at age 48, he began his search.

Schliemann traveled to Turkey. Troy supposedly was located on a hill from which the Trojans could easily see the Aegean seacoast. Other clues were provided in Homer's Iliad.

Research Heinrich Schliemann's life and discover how he worked as an archaeologist in digging at Troy and Mycenae.

ACTIVITY: Compare H. Schliemann's technique as an archaeologist to a modern archaeologist. Judge whether Schliemann really found Troy, if his levels were correct, if the gold was really that of Paris' Helen. Was the golden mask at Mycenae really that of Agamemnon?

Present your finding to a designated group, using your creativity in your type of presentation.

MATERIALS NEEDED: The Walls of Windy Troy by Marjorie Bragmer
Gods, Graves, and Scholars by C.W. Ceram
J913.03 Portals to the Past by Katherine B. Shippen

Taxonomic Categories: K, An, S, E

SUBJECT: **POTTERY and ARCHAEOLOGY**

OBJECTIVE (S): To develop an understanding of pottery through the student's creative experiences of working with clay and wheels and to acquaint the student with its importance in archaeology.

INTRODUCTION: Ancient pottery is very important to the science of modern archaeology. By examining the bits and pieces of pottery found at sites inhabited in ancient times, archaeologists can learn a great deal about people of the past-about their lives and deaths, about the development and decline of their civilization.

ACTIVITY: After reading Pottery in Ancient Times, make a statement that can be put on a 5x8 card about the importance of pottery to archaeologists, the various styles of pottery, and how to determine the age of a piece of pottery. Then experiment by "throwing" some pots.

First, try to make a pot without a wheel, then use a "lazy susan" that must be "hand driven." Finally, use a potter's wheel.

Fire all three pots. What comparisons can you make between your three pots? Evaluate the results.

Label each pot and display your work.

MATERIALS NEEDED: Gonen, R. and Currier, R. Pottery in Ancient Times The Lerner Archaeology Series: Minn., Minn. 1973

Taxonomic Categories: K, S

SUBJECT: **CHAMPOLLION and the ROSETTA STONE**

OBJECTIVE (S): To acquaint the student with the life's work of Champollion. The deciphering of the Rosetta Stone.

INTRODUCTION: In 1799, a French officer in the army of Napoleon was directing some excavations on a fort near Rosetta, Egypt. His attention was called to a large slab of stone which was covered with a long message carved in three languages. Recognizing it to be of importance, he ordered his men to carry this stone to his superiors.

Scholars examined this stone and found that the three languages were hieroglyphics, the sacred characters of Egyptian priests; Demotic, the common or popular script of the time when the stone was carved; and Greek.

For years, scholars worked on deciphering the stone.

Find out more about the Rosetta Stone and about the life of Jean-Francois Champollion, the man who finally deciphered it.

ACTIVITY: After doing research do <u>one</u> of the following:

(1) Write a puppet show about Champollion's life and his deciphering the Rosetta Stone. Put on the puppet show for a group of your choice.

(2) Draw a comic strip showing highlights of Champollion's life and his work. The strip should have at least 15 frames.

(3) Make a filmstrip about Champollion's life and his work. Prepare a tape to go with it.

MATERIALS NEEDED: Gods, Graves and Scholars by C.W. Ceram
J913.03 Portals to the Past by Katherine B. Shippen

Taxonomic Categories: L, C, An, S, E

SUBJECT: **DATING ARTIFACTS**

OBJECTIVE (S): To acquaint the student with some of the modern processes used to determine the age of ancient artifacts.

INTRODUCTION: One of the most important facts the archaeologist must establish about the artifacts and fossils is how old they are. Therefore, it is very important to be as close to absolute dating as possible.

Some of the techniques used for dating are dendrochronology (or tree-ring dating), obsidian hydration, thermoluminescence, potassium-argon, and radio-carbon.

ACTIVITY: After researching those techniques, choose the three that you feel are the most important and do one of the activities.

(1) Make a "movie" by drawing your information on a long sheet of paper fastened to two rollers. Tape a script to go with your movie. Indicate why each technique is important. Present to a group of your choice.

(2) Write a script for a television program (such as "Cosmos" or "Nova") about your findings. Be sure to indicate why each technique is important.

MATERIALS NEEDED:

Digging the Past by Bruce Porell "Dating" pp. 28-30

Clocks for the Ages: How Scientists Date the Past by Robert Silverburg

Introducing Archaeology by Magnus Magnusson "Science in Archeology"

J913

Carbon-14 and other Science Methods that Date the Past by Lynn and Gray Poole 1961

Calendars to the Past by Gordon C. Baldwin 1967

Resource person: Dr. Stewart Fleming at the University of Pennsylvania Museum

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Taxonomic Categories: K, An, S

SUBJECT: **UNDERWATER ARCHAEOLOGY**

OBJECTIVE (S): To develop an interest in another phase of archaeology.

INTRODUCTION: Archaeologists "dig" underwater for the remains of "shipwrecks", ancient harbors and even whole towns that have been buried beneath the sea by land shifts.

Special equipment is required for underwater archaeologists.

Find out about underwater archaeology, the special needs and equipment and the interesting "finds".

ACTIVITY: Compare underground archaeology to underwater archaeology. Investigate and report on tools, sites, "finds" and dangers of underwater archaeology.

Choose one of the following activities to show your findings:

(1) Make a "movie" by drawing your information on a long sheet of paper fastened by two rollers. Tape a script to go with your movie. Present to a group of your choice.

(2) Make an aquarium display showing the result of your investigations. Present to a designated group.

(3) Give an oral report of your findings. Use A-V equipment, charts, and dittos, if needed .

MATERIALS NEEDED:

Portals to the Past by Katherine B. Shippen, pp. 212-223

J913.03 Ships, Shoals and Amphoras by Suzanne deBorhegyi, Holt, Reinhart and Winston, Inc., 1961

National Geographic Magazine

J913.03 Cousteau, Jacques-Yves, The Silent World, 1950

Watts, Edith Whitney Archaeology: Exploring the Past, Metropolitan Museum of Art N.Y.,p. 26

Ceram, C.W., Gods, Graves and Scholars, pp. 438-457

Taxonomic Categories: K, S, E

SUBJECT: **SALVAGE ARCHAEOLOGY – THE RACE AGAINST TIME**

OBJECTIVE (S): To acquaint the student with the need to salvage archaeological evidence that will be lost through the destruction of these sites by the growth of a nation.

INTRODUCTION: "Archaeologists estimate that eighty percent of all prehistoric Indian ruins in the United States are located along river valleys. With the expanding population, the leveling of huge tracts of land, and the construction of dams and consequent flooding, the greater part of those ruins will forever be destroyed."*

In North Carolina, the only known complete Iroquois long house was discovered during the building of a parking lot. Emergency court proceedings failed to stop the parking lot being built on the long house site and the long house was demolished by bulldozers.

ACTIVITY: Find out about salvage Archaeology in the United States. Are we winning or losing this race?

*Baldwin, Gordon C., Race Against Time
After reading Race Against Time by Gordon C. Baldwin, present your findings to a group of students or adults.

Use your creativity to make your presentation as interesting and as informative as possible.

MATERIALS NEEDED: Baldwin, Gordon C, Race Against Time, JH913.03 G. P. Putnam's Sons,
(A-V Material)
Optional (Xeroxed copies)
(Charts)

Taxonomic Categories: K, An

SUBJECT: **CITY PLANNING IN ANCIENT TIMES**

OBJECTIVE (S): To develop an understanding in ancient man's endeavor to have an orderly urban society through prior planning.

INTRODUCTION: Is city planning used only in modern times, or is it one of the oldest professional accomplishments of the civilized world?

For a long time, people were unaware of just how much planning had been done in ancient times. But when archaeologists began to unearth the remains of early civilization, they found evidence of ancient planned cities. Even the oldest cities showed straight and regular networks of streets and in the careful arrangements of parks and public buildings.

ACTIVITY: Look at the ancient cities of Mesopotamia, Egypt, The Roman Empire, and ancient Greece. Choose one city from each of these countries. Compare these old cities with "old" Washington, D.C., Boston, Philadelphia, and Tenochtitlan, Mexico. Be sure to date each city plan.

Use several of the following visuals: xeroxed copies, overhead transparencies, maps, charts.

Give a five minute presentation on your findings.

MATERIALS NEEDED: Segal and Currier, City Planning in Ancient Times, The Lerner Archaeology Series, Minn., Minn., 1973.

Taxonomic Categories: K, S, E

SUBJECT: **THE MYSTERY OF THE ABANDONED MAYAN CITIES**

OBJECTIVE (S): To allow the student to realize that not all questions have "correct" answers.

INTRODUCTION: "The ruins of once-beautiful cities in the forests of Central America tell scientists much about the amazing people who built them. But they do not tell why these cities were suddenly abandoned over one-thousand years ago. Around 800 A.D., something mysterious happened to the Mayan civilization. Activity stopped in city after city. No more monuments or temples were built. Walls and foundations for new buildings were left unfinished. To modern archaeologists it looked as if the cities had been abandoned. What happened to the Mayas?"*

ACTIVITY: Be sure to include in your activity what your idea is about the strange exodus of the Mayas.

*Mysteries of the Past "The Mystery of the Mayas"

Choose one of the following activities:

(1) Write a script for a television program (such as "Cosmos" or "Nova") about your findings. Be sure to indicate why each technique is important.

(2) Draw a comic strip about the mystery surrounding the Mayas. The strip should be at least twenty frames long, or longer.

(3) Give a five minute presentation using visuals such as charts, transparencies, or dittos. Be creative.

MATERIALS NEEDED: Gods, Graves, and Scholars by C.W. Ceram, pp. 419-437
Mysteries from The Past Edited by Thomas G. Aylesworth, The Natural History Press, pp. 25-39
Ancient America Great Ages of Man series, Time/Life

Taxonomic Categories: Knowledge, Application
Comprehension

SUBJECT: **AMERICAN ARCHAEOLOGY**

OBJECTIVE (S): To familiarize student with the way archaeology and anthropology are related.

INTRODUCTION: W.H. Holmes studied the culture of past peoples by studying the artifacts left by them. He united archaeology and anthropology in American archaeology. As part of this union he dealt with the concepts of Biological Evolution, the Doctrine of Social Progress, and the idea of Cultural Evolution.

ACTIVITY: Define the concepts of Biological Evolution, the Doctrine of Social Progress, and the idea of Cultural Evolution. Describe the way in which W.H. Holmes unified these in American archaeology.

MATERIALS NEEDED: Resource texts on Anthropology, Archaeology and W.H. Holmes.

Taxonomic Categories: Synthesis and Evaluations

SUBJECT: **HISTORICAL RESEARCH**

OBJECTIVE (S): To prove or disprove a statement using factual research.

INTRODUCTION: Many archaeologist's finds have been lucky. That is, they have managed to somehow dig in the right place.

ACTIVITY: Using resource texts, prove or disprove the statement: Above all else, an archaeologist needs to be lucky.

MATERIALS NEEDED: Resource Texts:

Fagan, Brian M., Quest for the Past, Reading, Mass: Addison-Wesley, 1978
Ceram, C.W., Gods Graves, and Scholars, Bantam Books, N.Y., 1967

Taxonomic Categories: Analysis, Synthesis, Evaluation

SUBJECT: **INTERPRETATION OF ARTIFACTS**

OBJECTIVE (S): The interpretation of artifacts.

INTRODUCTION: If you can acquire the assistance of a museum, ask them if it would be possible for the students to view artifacts without being given any information about them. The students are to try to determine what the items are, what they were used for, and infer something about the culture in which they were used.

ACTIVITY: Given artifacts, draw a hypothesis about the culture in which they were used. If possible, support your hypothesis using other materials, either information from texts, or other museums.

MATERIALS NEEDED: Artifacts,
Possible resource texts to check for accuracy.

Taxonomic Categories: Synthesis, Evaluation

SUBJECT: **MORAL VIEW OF BURIAL SITES.**

OBJECTIVE (S): To examine an archaeological find from a moral viewpoint.

INTRODUCTION: Burial sites often provide invaluable information about a past culture. Yet, many religious rituals forbid the removal of a grave. Choose a burial site that has been excavated and find out as much information about the site's culture as possible.

ACTIVITY: Debate the issue of whether it is wrong to excavate and remove burial sites from the viewpoint of different religious beliefs as well as your own beliefs. These beliefs should include those which are suspected to be of the culture of the body found.

MATERIALS NEEDED: Resource texts on religious beliefs and cultures.

Taxonomic Categories: Knowledge, Synthesis, Evaluation

SUBJECT: **CULTURAL DEVELOPMENT OF AMERICAN INDIANS: COMPARATIVE CULTURES.**

OBJECTIVE (S): Student will understand the level of cultural development attained by the American Indian prior to Eurasian contact.

Student will predict the development of this culture had such contact not interrupted and halted its development. Students will evaluate the effects of this contact.

INTRODUCTION: The American Indian, especially in Central and South America, developed advanced cultures. Most authorities agree these developed independently of Old World cultures. The fact that parallels exist between these cultures provides anthropologists with evidence that cultural development follows certain laws of cultural evolution. Unfortunately, the post-Columbian European influx destroyed the American Indian cultures so that these laws were not fully illustrated.

ACTIVITY: Research the levels of cultural development attained by the Indians of Central and South America by 1500 A.D. .What technology had they developed? What types of economic, military, political, and social organization had they developed? How far had their art and religion progressed from primitivism?

What would have happened had European contact not been made? What would have happened to the Inca and Aztec empires? Would they have clashed, as European empires were meant to do, and, if so, would Indians from the North or South have replaced them? How would the environment have continued to affect their development, and what differences from Eurasian cultures would it have encouraged? Despite such differences, would their cultural development have paralled that of Eurasia?

To predict such parallels, draw analogies between the history of pre-Columbian America and that of the Old World.

Such questions will plunge you into heavy anthropological and archaeological research and should lead you to the University of Pennsylvania Museum where experts can help you shape answers to them. Perhaps you could tape your conversation so as to share it with the class. Your research will lend itself to a term paper-lecture presentation, but you can actively involve the class by inviting the predictions before launching into your own more informed ones.

MATERIALS NEEDED: The idea for this activity came from the article "Wanted-More and Better Archaeologists" by A. V. Kidder, a copy of which can be obtained from Project Quest, Bucks County Intermediate Unit, Doylestown, Pa.

Taxonomic Categories: (a) Knowledge, Application
(b) Knowledge, Synthesis

SUBJECT: UNDERWATER ARCHAEOLOGY

OBJECTIVE (S):
(a) Student will understand the problems and techniques of underwater archaeology.
(b) Student will understand the differences between the techniques of underwater and conventional archaeologies.

INTRODUCTION: Though we usually associate archaeology with digging in the ground, underwater archaeology has emerged as a relatively new branch of archaeology. Many ancient sites are presently submerged waiting to be discovered. Some treasure-bearing Spanish galleons, wrecked by pirates or storms along the Caribbean and Florida coasts, have been discovered but others; sleep undisturbed on the bottom of the ocean. Attempts to find the Titanic and to recover treasure

from the Andrea Doria are recent examples of underwater archaeology.

ACTIVITY:

(a) After having thoroughly researched underwater archeaology – noting particularly the problems inherent in such archaeology and the methods of successful "dives" – devise an interesting and informative way to communicate your knowledge to your classmates. Since the subject lends itself to sensationalism and romanticism, a game utilizing archaeological, historical and geographical facts – as well as imagination and creativity might be an appropriate vehicle for such communication.

(b) After having thoroughly researched the methods of underwater and conventional archaeologies, prepare a lecture and chart-demonstration in which you compare and contrast them. How are sites for each determined? What are the problems and methods unique to each type of excavation? What problems and methods are common to both? Other points of comparison and contrast will occur to you as you research the material. If you can locate archaeologists experienced in each of these areas, invite them to address the class, or, if this is impossible, at least correspond with them.

MATERIALS NEEDED:

Archaeology Beneath the Sea, George Bass, 1975.
"Drowned Galleons Yield Spanish Gold", Kip Wagner, National Geographic, Jan., 1965
Nautical Archaeology, Bill St. John Wilkes, 1971
Shipwrecks, Skin Divers, and Sunken Gold, Dave Horner, 1965
Sunken History: The Story of Underwater Archaeology, Robert Silverber, 1963

Taxonomic Categories: Knowledge, Application, Snythesis

SUBJECT: **MYTHS AND ARCHAEOLOGY**

OBJECTIVE (S): Student will discover a "pattern" in the history of archaeology – namely the use of myths in the discovery and interpretation of sites. Student will apply this pattern to untested situations.

INTRODUCTION: Heinrich Schliemann located Troy on the basis of clues provided by Homer's Ilied. Sir Arthur Evans used the myth of Theseus and the Minotaur to interpret the labyrinthine palace he unearthed at Crete and the many representations of bulls he found on its artifacts. Similar connections exist between Hindu myths (the Rigveda) and the discovery of the great cities at Harappa and Mohenjo-Daro. Probably other myths have functioned and could function in discovering and interpreting archaeological sites.

Read the myths surrounding Atlantis. What clues do they furnish as to its whereabouts? What attempts have been made to locate this legendary city and have they utilized the myths?

Read several myths of any ancient culture: the Egyptian, Chinese, Greek, North or South American, the Teutonic, etc. Do any of these myths suggest archaeological sites? Find out whether such sites have, indeed, been excavated. If so, were the myths instrumental in their discovery? If such sites have not been excavated, do you think the myths offer enough evidence to warrant a search? What are the advantages and disadvantages of treating myths like maps?

Your presentation to the class can take many forms. One possibility: Pretend you are an archaeologist convinced of the whereabouts of a site based on your reading of certain myths. Try to persuade a skeptical group (the class) to finance the dig.

MATERIALS NEEDED: Books on Atlantis
Myths from a particular culture
Quest for the Past by Brian Fagan (the chapters on Troy and Crete discuss the use of myths in archaeology)

Taxonomic Categories: Analysis

SUBJECT: **DETERMINATION OF ARCHAEOLOGICAL SITE**

OBJECTIVE (S): Student will determine whether the area he lives in is archaeologically promising.

INTRODUCTION: Amateur archaeologists abound, especially in areas rife with relics from the past. The student who wants to get involved in a dig can try to join one already in progress, or he can try to organize his own. Before plunging headlong into this latter idea, he must lay the groundwork. The student must determine whether the area he lives in promises to be archaeologically rewarding.

ACTIVITY: Try to think through the type of environment Indians would have found amenable to habitation. Brainstorm its characteristics. Is any such area close to you? Send for a topographical map of Pa. from the U.S. Geological Survey, Department of the Interior, Washington, D.C. 20405.

Read up on your area and interview people knowledgeable about its history (e.g. the curator of the Mercer Museum, Doylestown, Pa.) Be open to both its Indian and Colonial past. Visit the library and county courthouse for land records, wills, letters and diaries and newspaper articles which might provide leads. Contact the Chapter of the Society for Pa. Archaeologists closest to you (e.g. Forks of the Delaware, Easton or Southeastern No. 2, Elkins Park). Write to the State Archaeologist (Pa. Historical and Museum Commission, P.O. Box 1026, Harrisburg, Pa. 17120) for any information he may have on your area. Ask around to see if you have any "weekend archaeologists" for neighbors.

MATERIALS NEEDED: Whether or not this research and footwork provide you with a site, you will have fulfilled this assignment if you can share its process and conclusion with your classmates and teacher. Organize your material and presentation in chronological order telling what you did first, second, etc., what leads developed, what deadends occurred, what conclusions you reached and why.

Invaluable assistance will be provided by The Amateur Archaeologist's Handbook (3rd ed.) by Maurice Robbins.

Read The Artifact Hunter's Handbook by Michael Hudoba.

Taxonomic Categories: Knowledge, Application, Snythesis

SUBJECT: **RECONSTRUCTION OF THE PAST FROM ARCHAEOLOGICAL EVIDENCE**

OBJECTIVE (S): Student will design an exercise that will simulate the methods of archaeological reconstruction.

INTRODUCTION: The artifacts of a dig provide clues to how a person lived from day to day and coped with their surroundings in their struggles for food, clothing, and shelter. These artifacts can sometimes imply something about a person's values, beliefs, and social organization. Archaeologists have reconstructed civilizations long since vanished from the face of the earth using artifacts as evidence.

ACTIVITY: Research several archaeological assemblages and the way archaeologists interpreted these finds (e.g. the contents of Tut-Ankh-Amun's tomb; the key-out and artifacts of a pre-historic pueblo; the bone and weapon remains of earliest man in the Olduvai Gorge, Africa). Try to grasp the logic and intuition that went into such reconstruction. Prepare your notes for a preliminary lecture to the class that will guide them in a similar but simulated archaeological exercise.

Create on paper an imaginary culture. Determine its antiquity, population, method of food production, religion, social organization, artistic development, trade experience, etc. Assemble artifacts that will challenge, but not overly frustrate, your classmates to reconstruct that culture. You will probably have to tell them how old the objects are since the real thing will not be available to you, but you can throw them off by including artifacts of varying ages.

MATERIALS NEEDED: An excellent, scholarly article illustrating the techniques of cultural reconstruction is James Hill's "A Prehistoric Community in Eastern Arizona", a copy of which can be obtained from Project Quest, Bucks County Intermediate Unit, Doylestown, Pa. 18901.

Taxonomic Categories: Knowledge, Analysis

SUBJECT: **ARCHAEOLOGICAL DATING METHODS**

OBJECTIVE (S): Student will understand and be able to explain to others the various types of archaeological dating methods.

INTRODUCTION: Technological advances within the past two decades have enabled archaeologists to date their finds with heretofore unavailable precision. Furthermore, the diversity of these methods provides archaeologists with the means to check the validity of their conclusions.

ACTIVITY: Research the latest techniques of archaeological dating; include dendrochronology; dating by faunal association; radio-carbon 13 and radio-carbon 14 dating; pollen analysis; raceminzation; and thermoluminescence. Prepare a chart which will clearly outline the ranges of each method. Before you explain each type to the class, make sure you

understand them by consulting recent books and articles and by consulting experts in the field. Visit the University of Pennsylvania Museum to see its radio-carbon 14 equipment – in operation if possible. Find out what dramatic changes these recent dating techniques have effected in previously held theories. Once you have mastered the scientific terminology and concepts involved, devise a lecture/chart demonstration that will make a complex subject comprehensible to your classmates.

MATERIALS NEEDED: The Amateur Archaeologist's Handbook (Third ed.) by Maurice Robbins – Chapter 10 provides a good overview of this subject. The bibliography for Chapter 10 (pp. 296, 97) suggests further and more specilized reading.

Taxonomic Categories: Knowledge, Application, Evaluation

SUBJECT: EGYPTIAN PYRAMIDS

OBJECTIVE (S): Student will construct a scale model of an Egyptian pyramid. Student will understand the several theories archaeologists and others have developed to explain the pyramids. Student will evaluate those theories.

INTRODUCTION: The pyramids have astounded archaeologists, engineers, and tourists for centuries. Why and how they were built are puzzles that have produced both scientific and silly theories.

ACTIVITY: Construct out of cardboard or other material a scale model of the Great Pyramid of Cheops at Gizet, reproducing its angle of incline, height, and length. Draw or construct its interior also.

Research the many theories that have been proposed to expain the pyramids: the cosmic energy theory, the astronomical theory, the religious theories, the political theories, etc. List pros and cons for each hypothesis and determine the one(s) most likely to be valid.

MATERIALS NEEDED: Quest from the Past (Chapter 8) – Brian Fagan
Secrets of the Great Pyramids – Peter Tompkins
The Pyramids of Egypt – I.E.S. Edwards
The Riddle of the Pyramids – Kurt Mendelssohn

BIBLIOGRAPHY

The books listed in this bibliography are general in nature. The bibliography in Glyn Daniel's 150 Years of Archaeology is comprehensive, and this should be the first work consulted for a more detailed or specific study. The bibliographies in individual works should also be consulted, as they will also provide additional readings.

There are a bewildering number of journals to promote study and publish research in specific areas of archaeology. Archaeology the bimonthly publication of the American Institute of Archaeology is the best general magazine or journal available today. Expedition the University Musuem Magazine of Archaeology and Anthropology is available, through an appropriation from the Legislature of the Commonwealth of Pennsylvania in the libraries of all Junior and Senior High Schools in Pennsylvania. Expedition will provide a good general introduction to field work in archaeology and anthropology.

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